

INTER-LAYER INTERCONNECTION STRUCTURE FOR LARGE ELECTRICAL CONNECTIONS

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ABSTRACT OF THE DISCLOSURE

Embodiments of the invention include an electrical interconnection structure for connection to large electrical contacts. The electrical interconnection includes a semiconductor substrate having a conductive pad layer formed thereon. A dielectric layer having a plurality of elongate trenches is formed over the conductive pad layer such that the elongate trenches extend through the dielectric layer to the underlying conductive pad layer. Elongate conductive contacts are formed in the elongate trenches to establish electrical connections to the underlying conductive pad layer. The long axes of the elongate bar trenches can be arranged substantially parallel to the long axes of the slots formed in the copper pad. Alternatively, the long axes of the bar trenches can be arranged transversely to the long axes of the slots formed in the copper pad. In some embodiments, the conductive contacts are formed such that they establish electrical connection with sidewalls of the underlying conductive pad layer. Other embodiments address the methods of manufacturing the electrical interconnection structures of the present invention.